

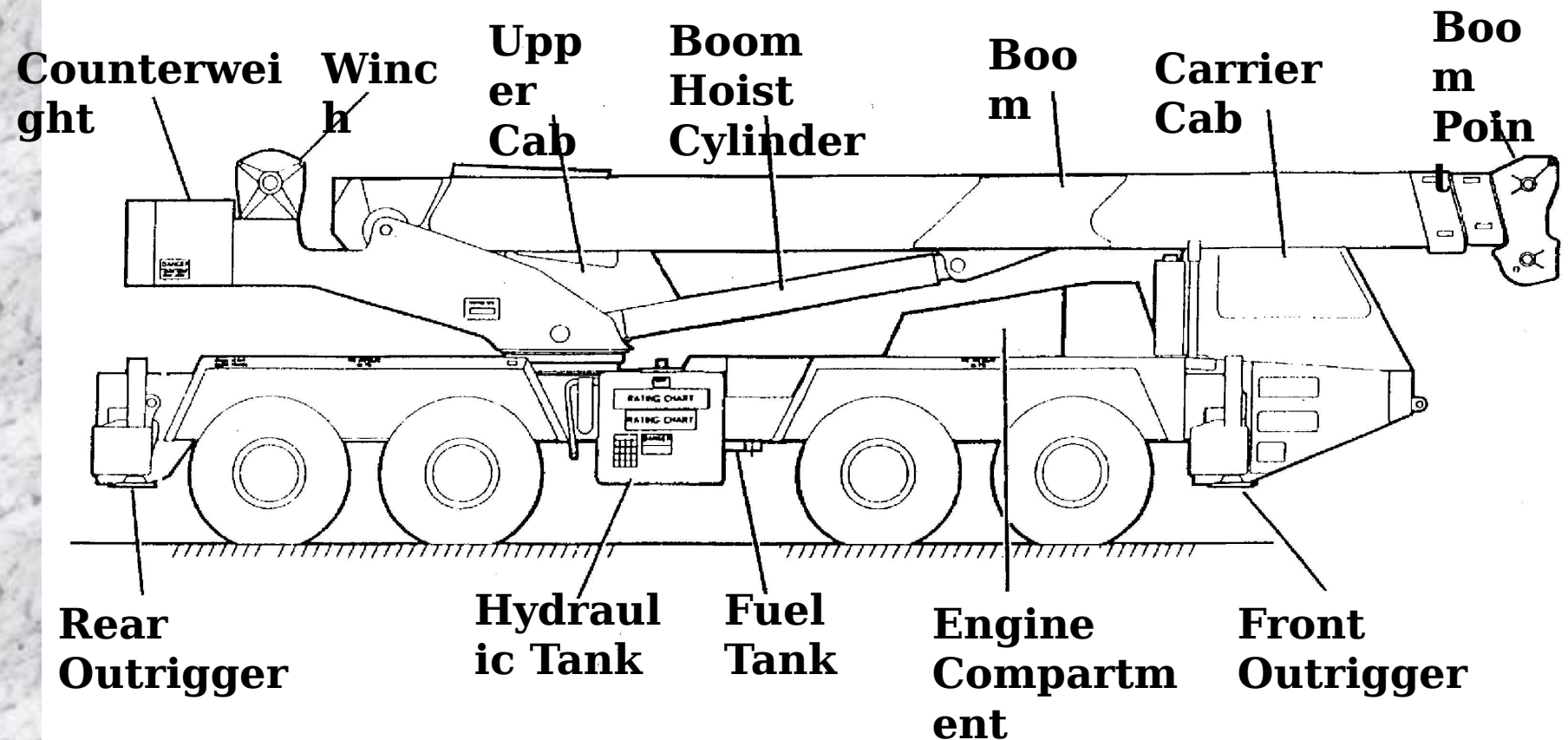
**HSHMC 25 Ton**

■ **GySgt Brubaker**

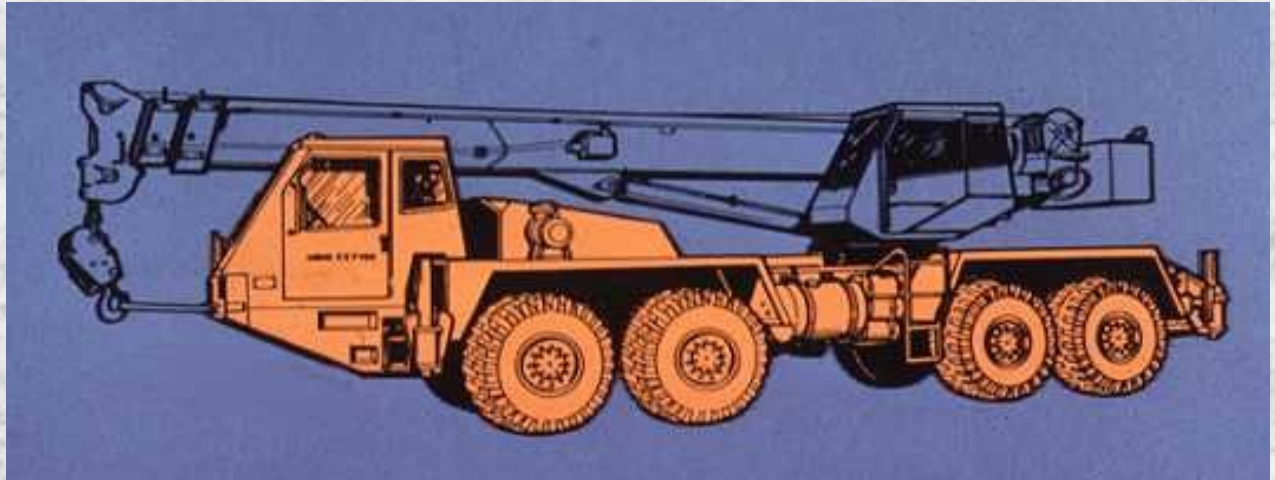
# HSHMC 25 Ton



# HSHMC 25 Ton Nomenclature



# **HSHMC 25 Ton**



- **25 Ton rough terrain crane**
- **Loaded extra axles and special tires**
- **Operates at a relatively high speed.**



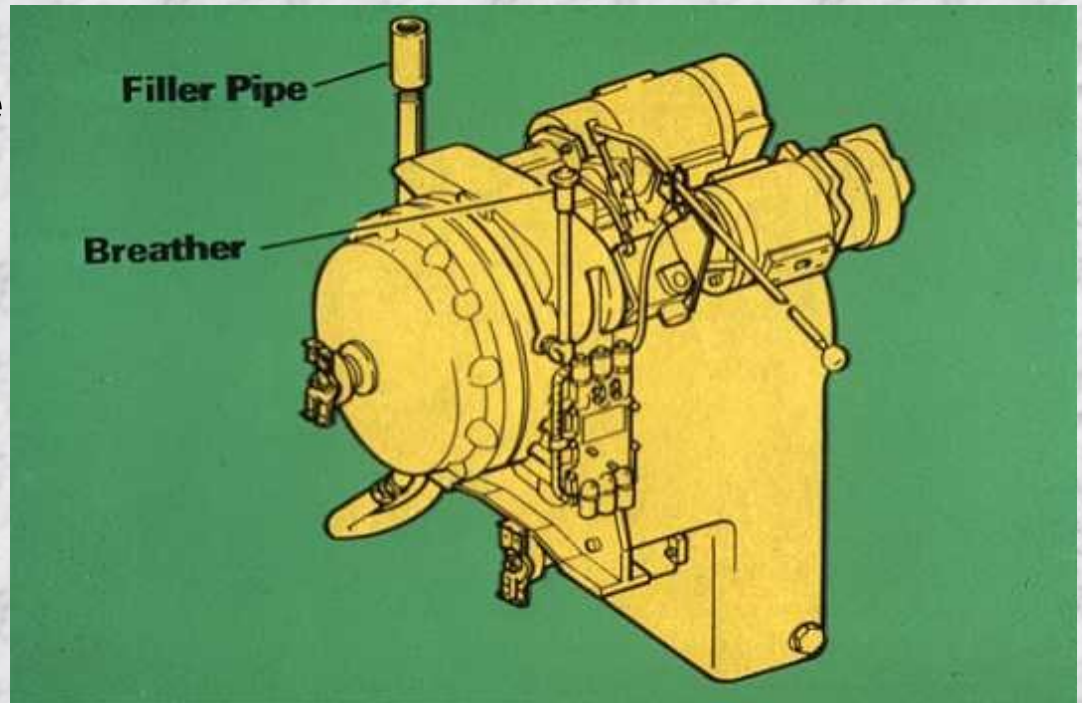
# **HSHMC 25 Ton Engine**

- **Diesel powered,  
3408 V8 Cat Turbo  
Engine**
- **Engine oil pressure  
at operating speeds:**
  - Lower cab 30 - 65 psi
  - Upper cab 30 - 60 psi
- **Normal water temp  
190 degrees**

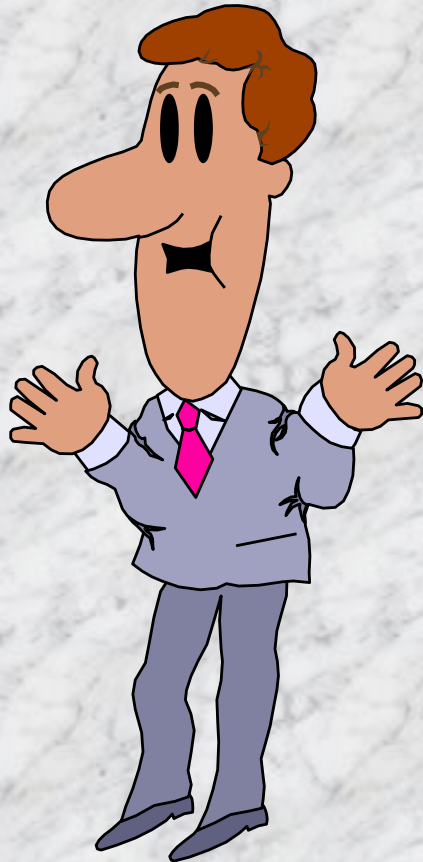


# HSHMC 25 Ton Transmission

- Full power shift transmission
- All wheel drive capability
- Limited slip differentials



# **HSHMC 25 Ton Transmission**



- **4 speeds forward**
- **2 speeds reverse**
- **High and low range**
- **Transmission and torque converter function together**
- **Differential lockout for individual axle and inter axle differential**



# **HSHMC 25 Ton Transmission**

- **Check fluid while:**

- **Engine running**
- **Transmission in neutral**

- **Top hole**

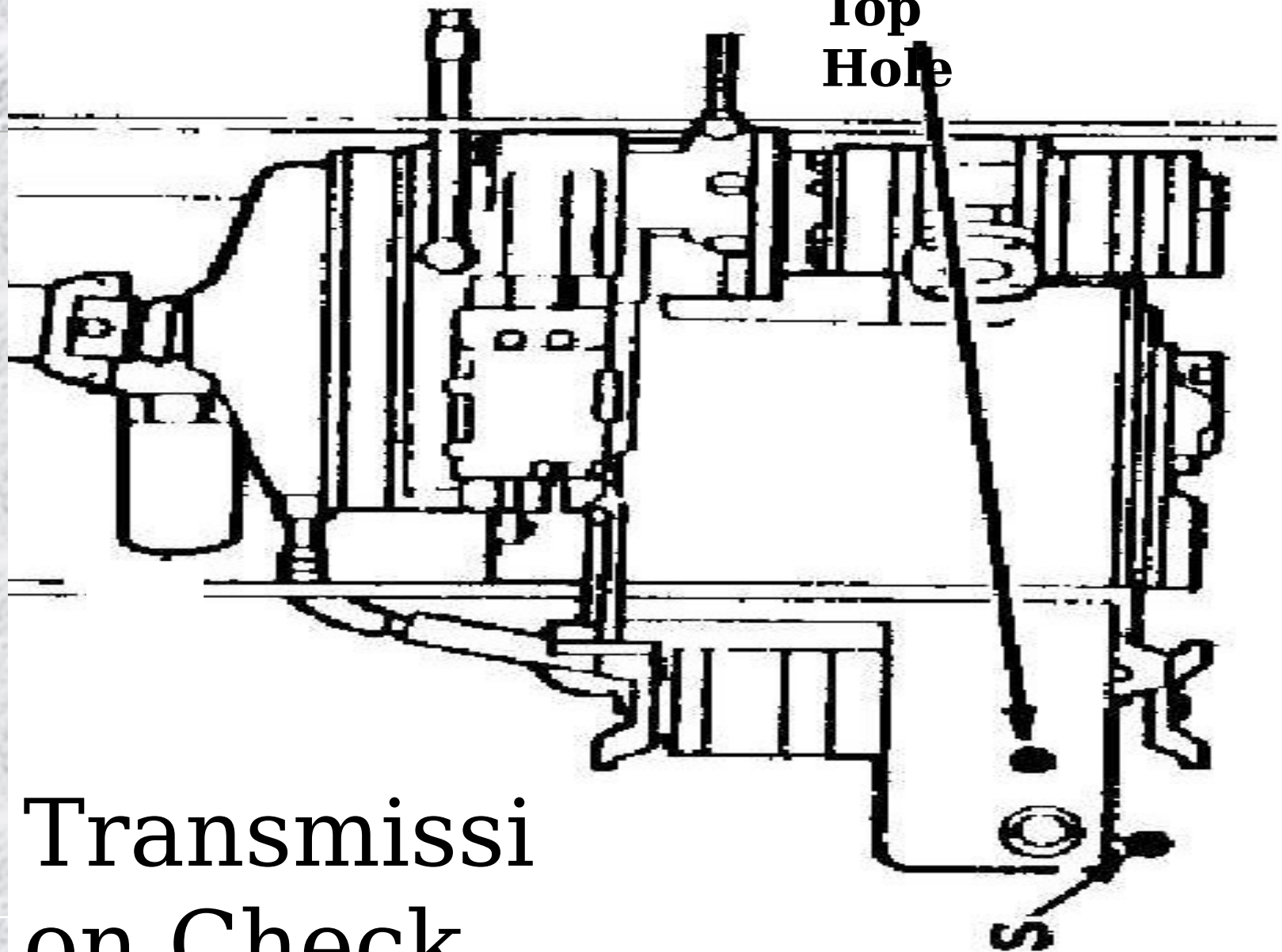
- **Hot fluid**

- **Bottom hole**

- **Cold fluid**



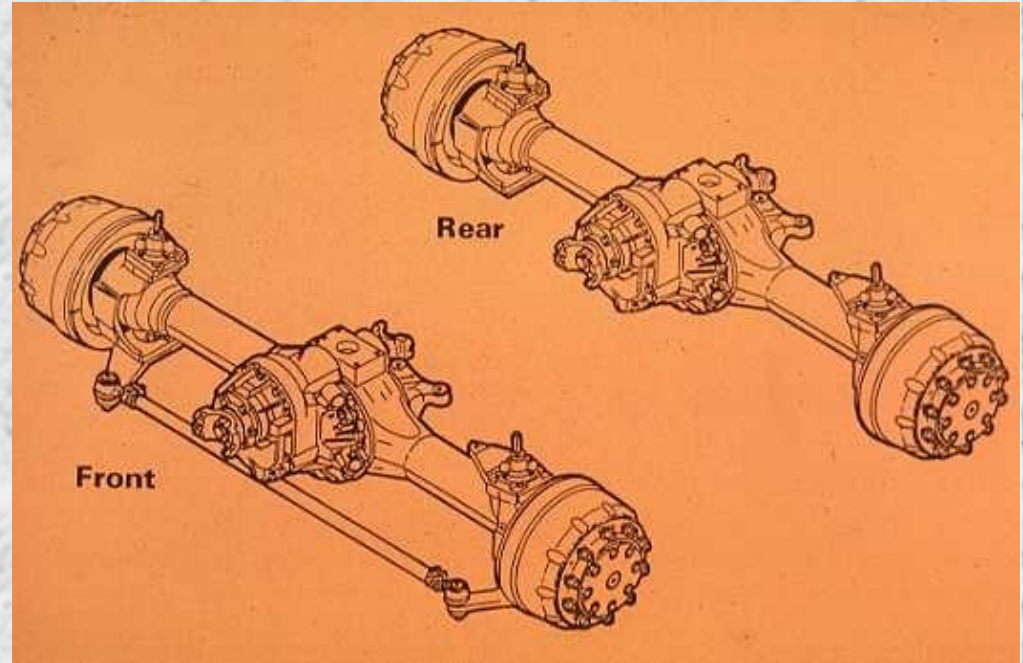
Top  
Hole



Transmissi  
on Check

# HSHMC 25 Ton Axles

- Axles oscillate up and down
- 8 wheel drive
- Fords 60"



# **HSHMC 25 Ton Fuel**



- **Fuel capacity, 70 gallons**
- **200 miles at max speed**



# HSHMC 25 Ton Electrical



- 24 volt, direct current, negative ground, electrical system
- Utilizes 4 batteries

# **HSHMC 25 Ton**

- **Top speed, 45 MPH**
- **Air over hydraulic brakes**
- **Negotiate 20% side slope due to low center of gravity**
- **Driven from upper/lower cab**
- **Upper cab max speed 15 mph**

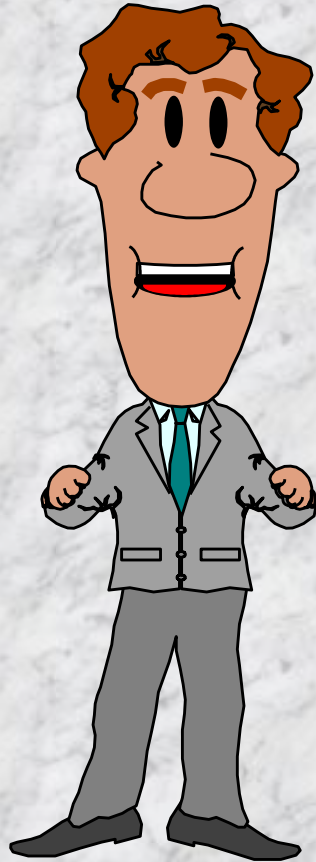
# **HSHMC 25 Ton Boom**



- **3 section box type**
- **Fully extended, 80 feet**
- **Fully retracted, 32 feet**



# **HSHMC 25 Ton Boom**

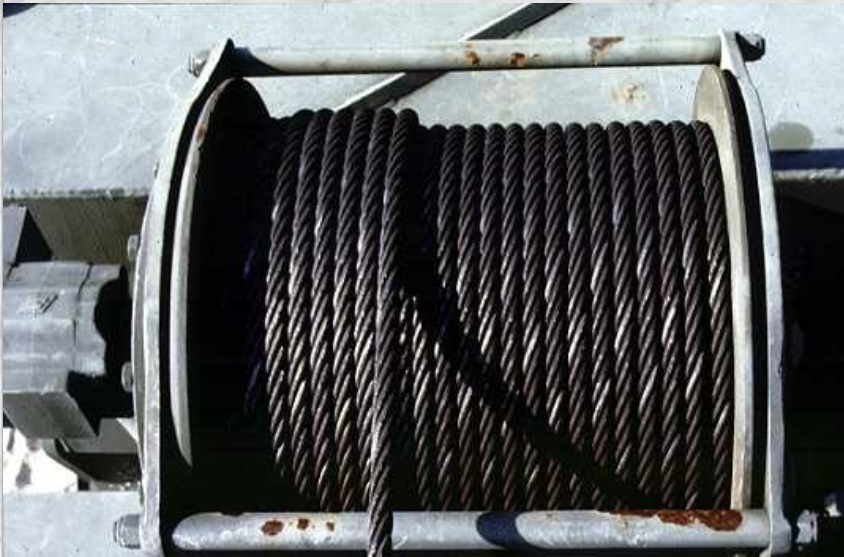


- **Cradle equipped with a safety device**
- **Locks axles when the boom is lifted from cradle**
- **Boom topping 75 degrees.**

# **HSHMC 25 Ton Boom**

- **Caution**
- **Raise boom higher than cab before swinging over front of crane**
- **Must be above 20 degrees**

# **HSHMC 25 Ton Winch**



- **Specially designed 2 speed winch**
- **30,000 plus, low speed.**
- **30,000 less and clamshell, high range**



# **HSHMC 25 Ton Winch**

## ■ **Caution:**

- **Do not select winch speed while winch is in motion.**
- **Damage to winch will result.**

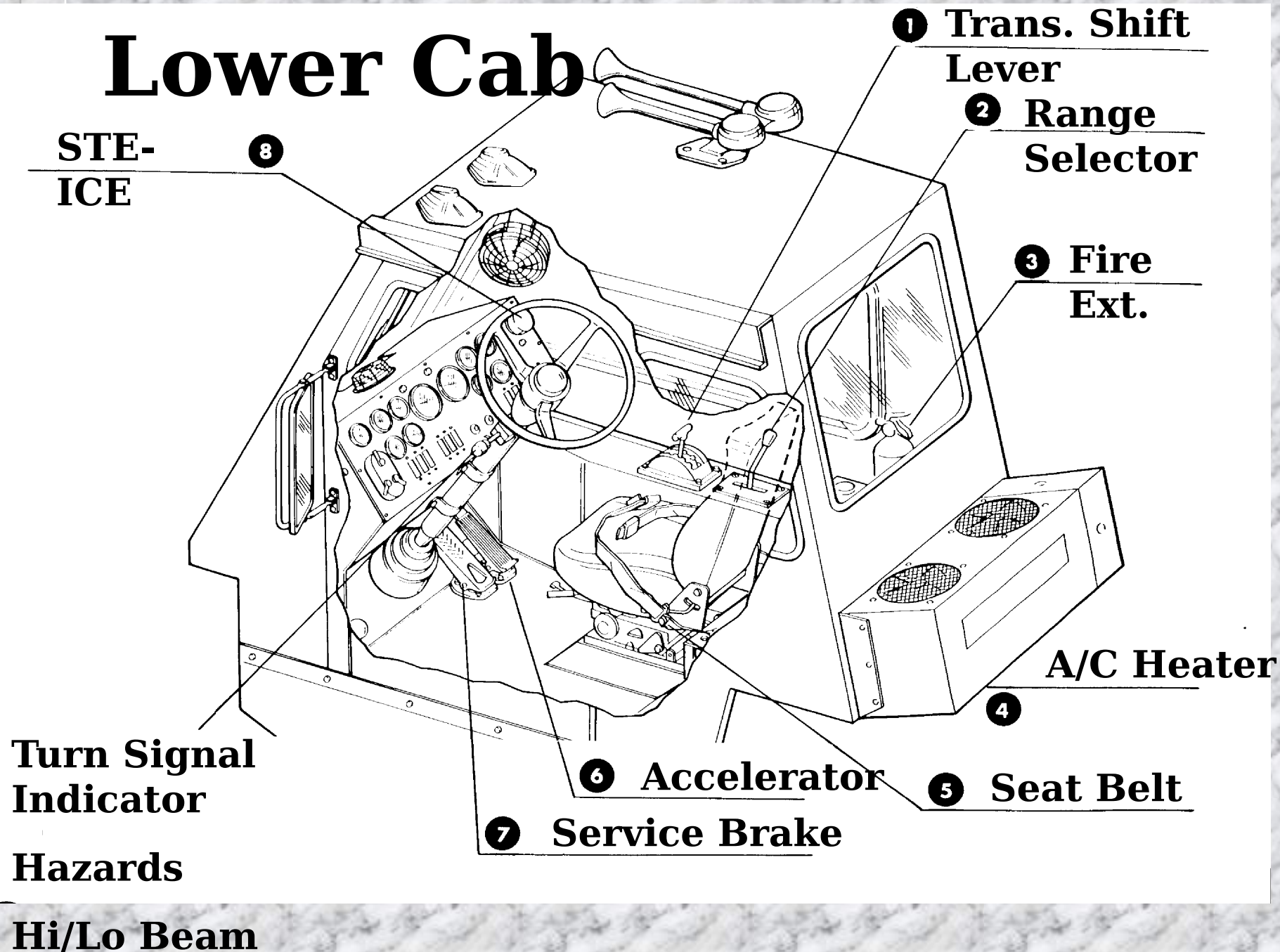


# **HSHMC 25 Ton**



- **Front wheel steering only**
- **Tire pressure 65 psi**

# Lower Cab



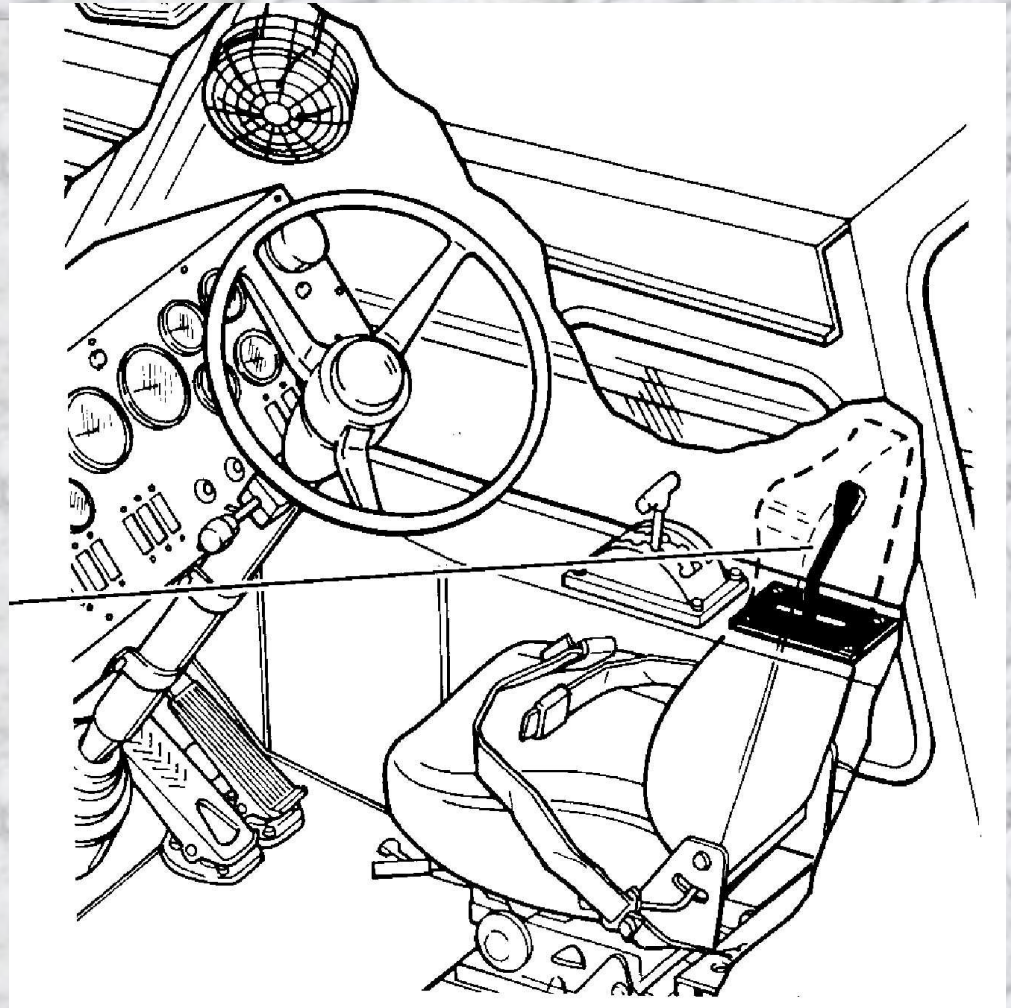


# **HSHMC 25 Ton Lower Cab**

- **Transmission shift lever**
  - 4 speed
- **Range selector lever**
  - High, Neutral, Low
  - Low range for upper cab
  - Low range for 8 wheel drive

# HSHMC 25 Ton Lower Cab

- **Hi/Lo selector in Hi position -**
  - Front axle drive
  - Differential lock
  - Outriggers
  - Steering
  - Throttle
- **Will not operate**



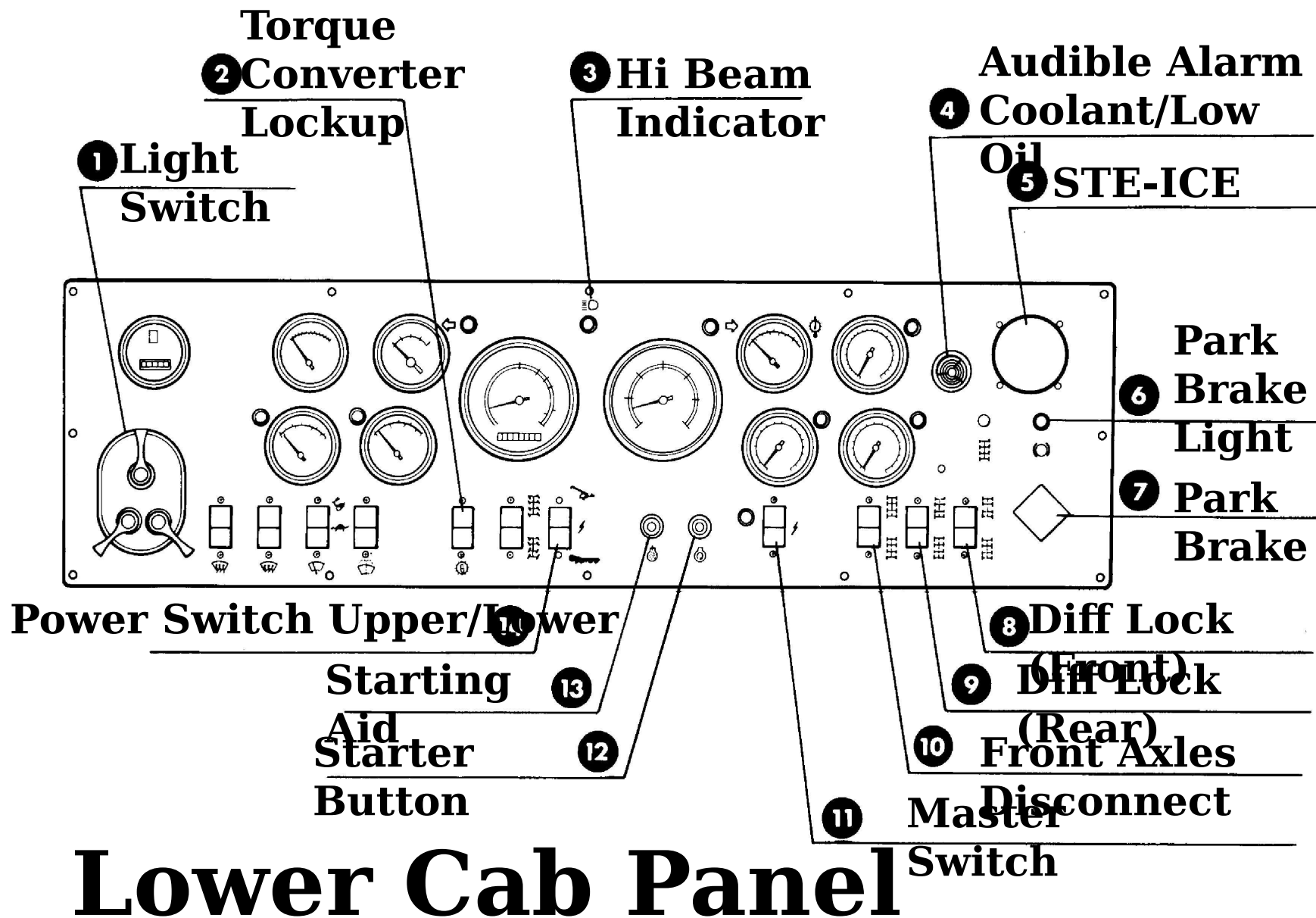


# HSHMC 25 Ton



■ Lower Cab Panel





# **HSHMC 25 Ton Lower Cab Panel**

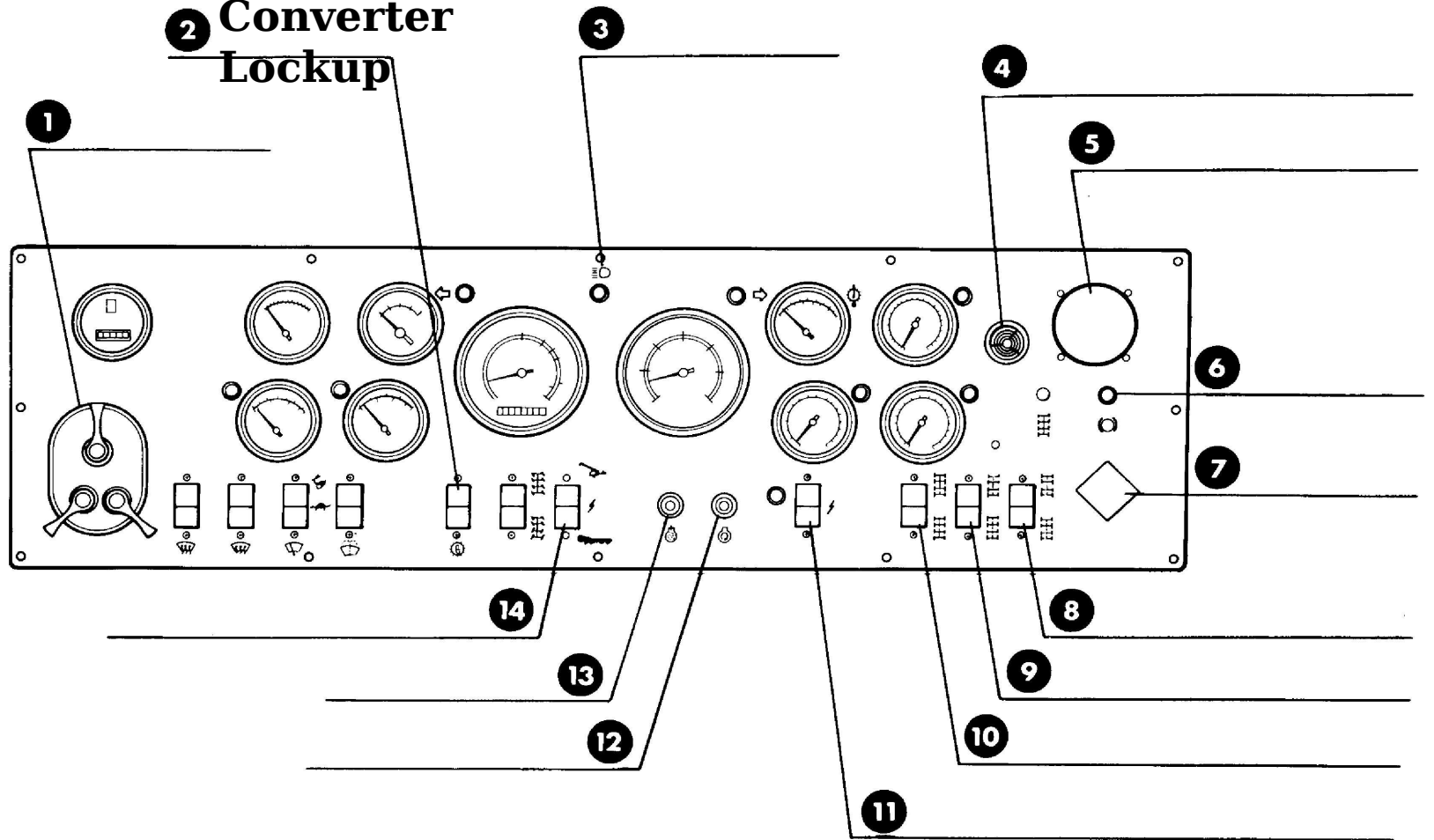
## **■ Torque Converter Lockup Switch**

- Takes slip out of torque converter

## **■ Warning Buzzer**

- Engine temp high
- Oil/Air pressure low
- Lights on

# Torque Converter Lockup





# **HSHMC 25 Ton Lower Cab Panel**

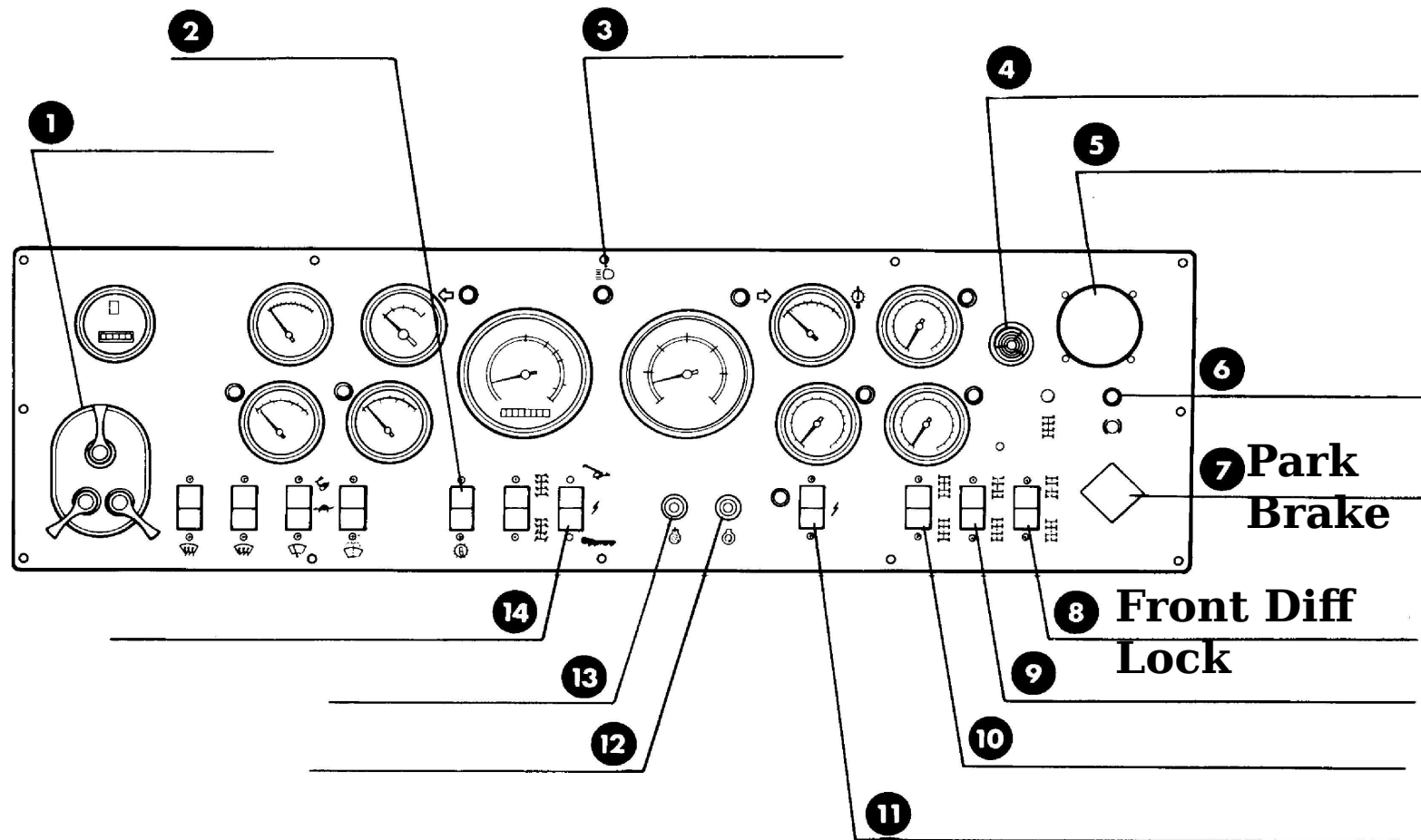
## **■ Park Brake Control**

- Rear brakes**
- Below 40 psi, automatically move to applied position**
- Below 60 psi, warning light/buzzer**
- Normal air pressure 100-120 psi**

# **HSHMC 25 Ton Lower Cab Panel**

## **■ Front Axle Differential Lock**

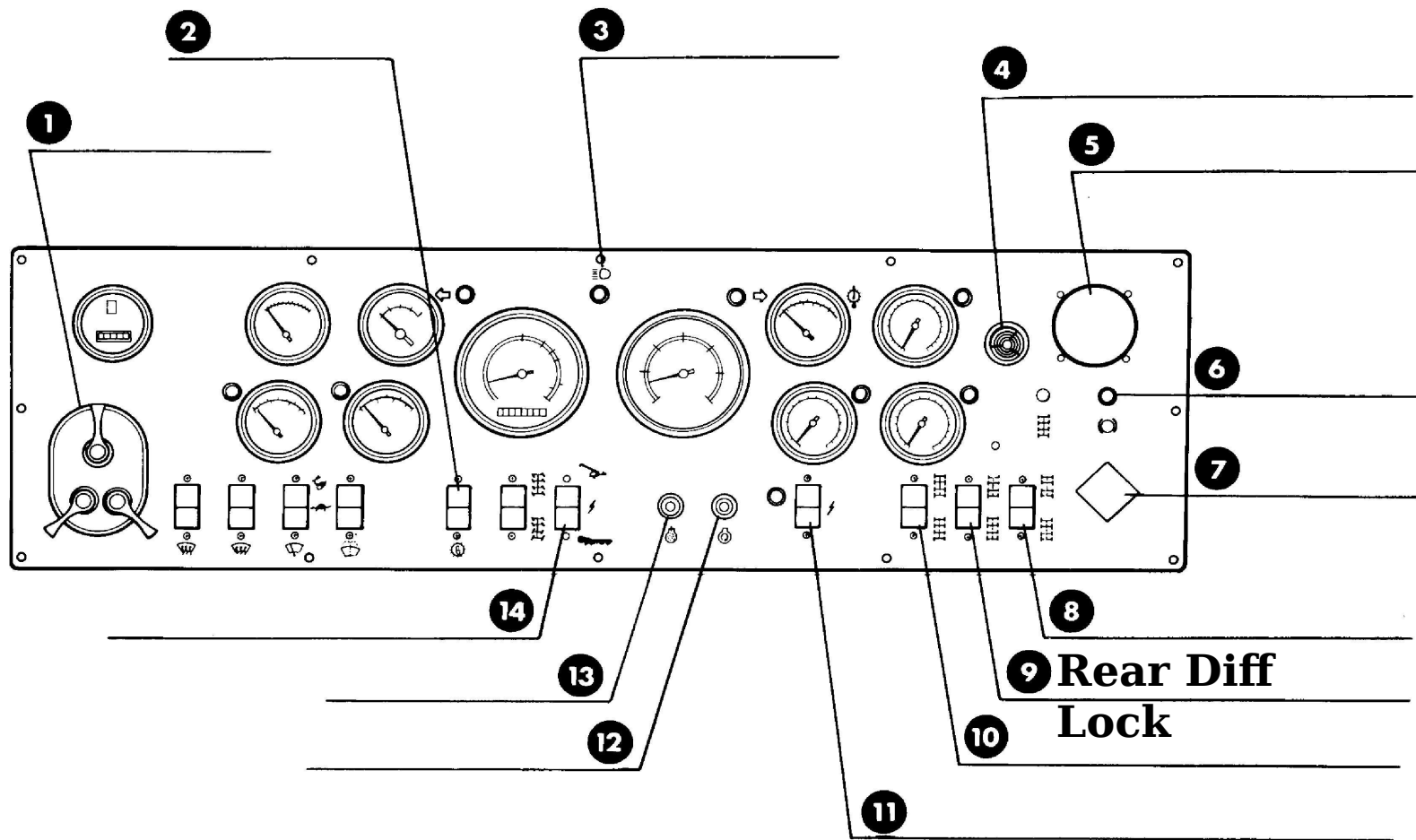
- Locks/Unlocks front axle differentials
- **MUST** select low range
- Switch spring loaded
- Complete stop before engaging





# **HSHMC 25 Ton Lower Cab Panel**

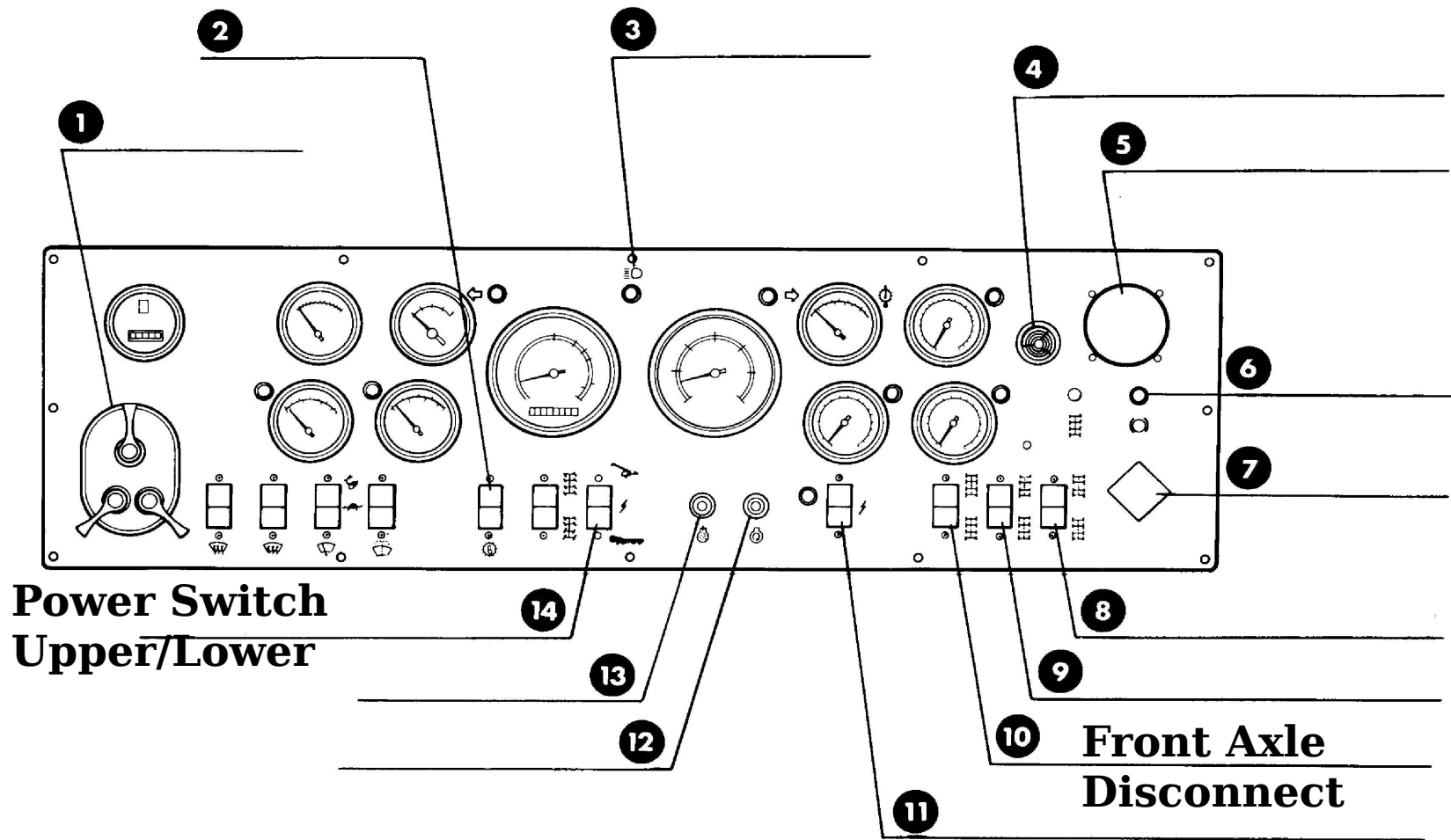
- **Rear Axle Differential Lock**
  - **Locks/Unlocks rear axle differentials**
  - **Not Spring loaded**
  - **Can leave engaged**
  - **Top of switch, UNLOCK**
  - **Bottom of switch, LOCK**
  - **Complete stop before engaging**



# **HSHMC 25 Ton Lower Cab Panel**

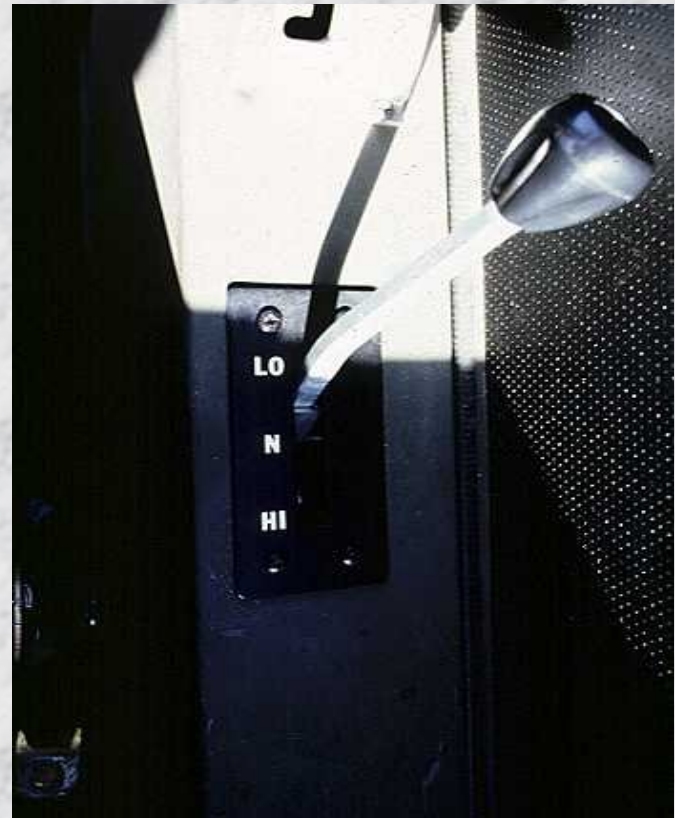
- **Front Axle Disconnect Switch**
  - 8 wheel drive
- **Upper/Lower Selector Switch**
  - Transfers power
  - Top of switch, UPPER CAB
  - Bottom of switch, LOWER CAB





# **HSHMC 25 Ton Lower Cab Panel**

- **Switching power to upper cab**
- **4 steps:**
  - **1) Shift transfer lever to low range**
  - **2) Shut off engine**



# HSHMC 25 Ton

- 3) Push power switch to upper position.





# HSHMC 25 Ton



- 4) Engage hydraulic pump
  - Lever up, UPPER CAB
  - Lever down, LOWER CAB

# HSHMC 25 Ton



■ **Are there any questions?**

# Upper Cab

① Telescope

② Lever  
Swing  
Lever

③ LMS

④ Swing  
Brake

⑤ Boom Pedal

⑥ Service  
Brake

⑮ Boom Hoist

⑭ Winch

⑬ Trans

⑫ Swing Bra

⑪ Hand  
Throttle

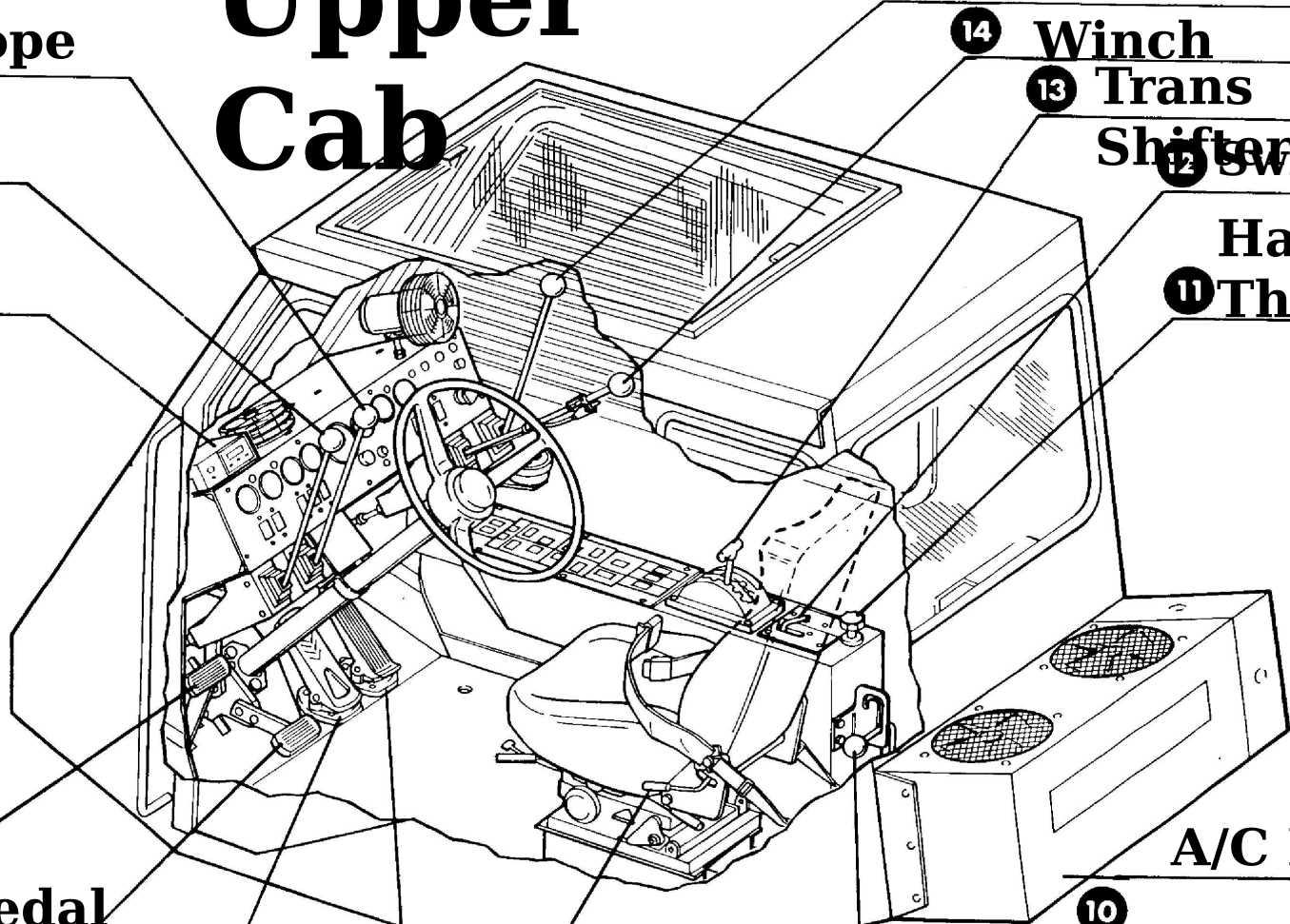
⑧ Seat  
Adjuster

⑦ Accelerator

⑨ House Lock

A/C Heater

⑩





# **HSHMC 25 Ton Upper Cab**

- **Positive Cab Lock**
  - Must be centered over front or rear to engage
- **Hand Throttle**
  - 1,100 to 1,500 rpm
- **Swing Lock**
  - Hydraulic brake

# **HSHMC 25 Ton Upper Cab**

- **Controls similar to lower cab**
- **Telescope Lever**
  - Extends/Retracts
  - Boom extends, wire rope shortens
- **Swing Brake**
  - Stops/holds cab

# **HSHMC 25 Ton Upper Cab**

- **Transmission Shift Lever**
  - 15 mph
- **Main Winch Lever**
  - Controls winch
  - Toggle switch for clamshell



# Upper Cab Panel

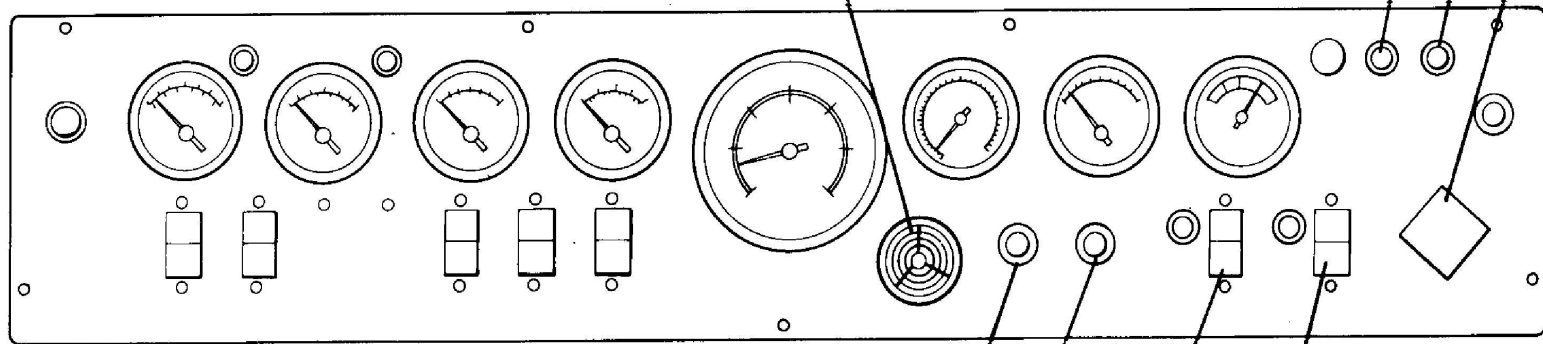
Audible alarm

**1** Coolant/Low  
Oil

**2** Park Brake

**3** Park Brake

**4** Light  
Low Air  
Pressure



**5** Starting Aid

**6** Starter

**7** Button  
Master

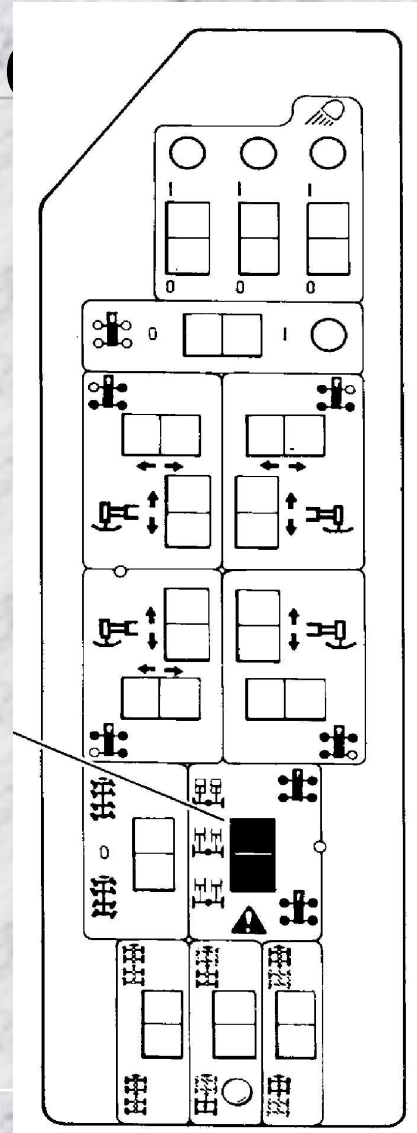
**8** Hi/Lo Winch  
Selector

# **HSHMC 25 Ton Upper Cab Panel**

- **Winch Speed Selector**
- **DO NOT** switch with winch in motion
  - **Damage to the winch will occur**

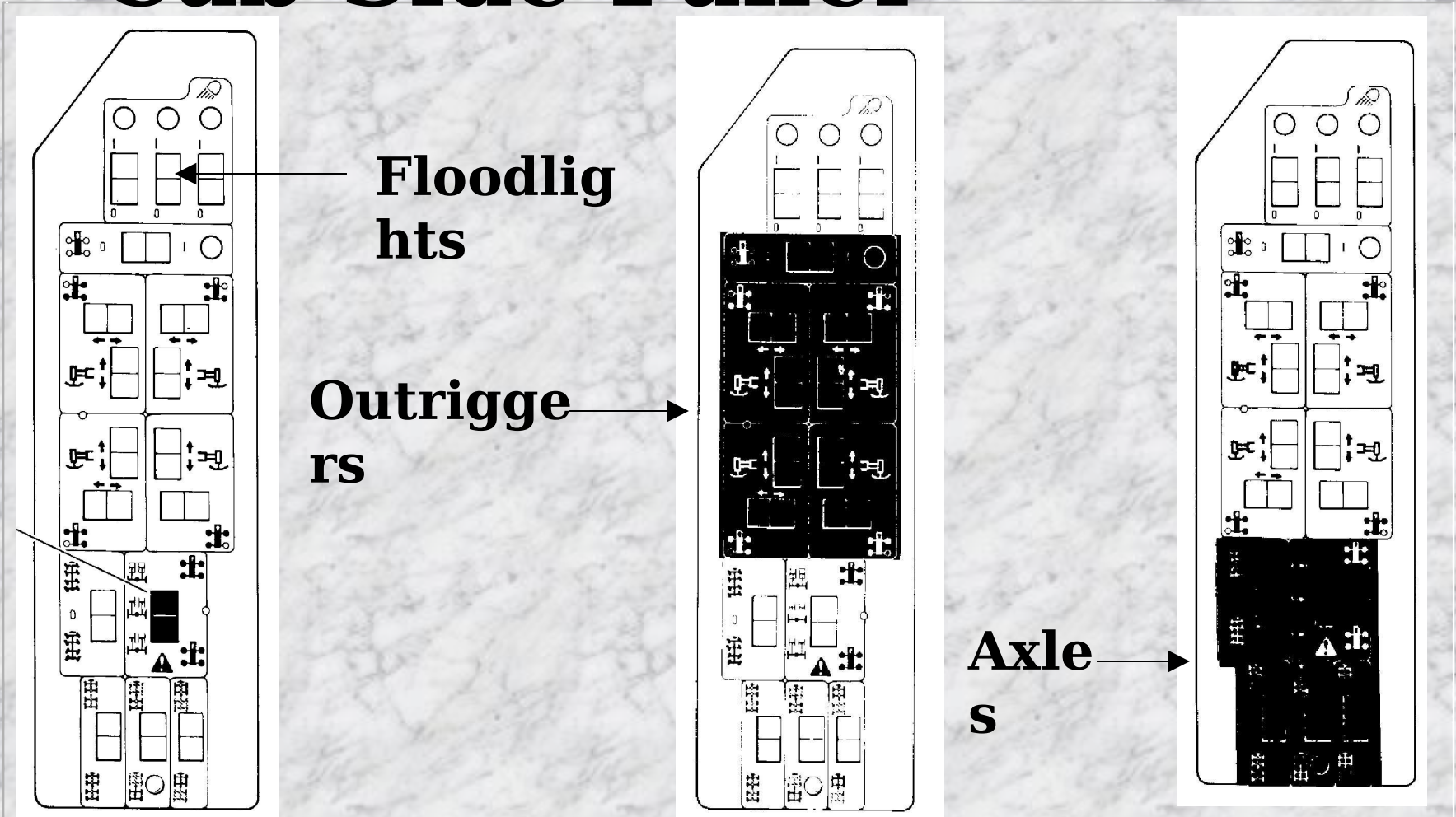
# HSHMC 25 Ton Upper Cab Side Panel

- Located to right of operator
- 3 groups





# HSHMC 25 Ton Upper Cab Side Panel



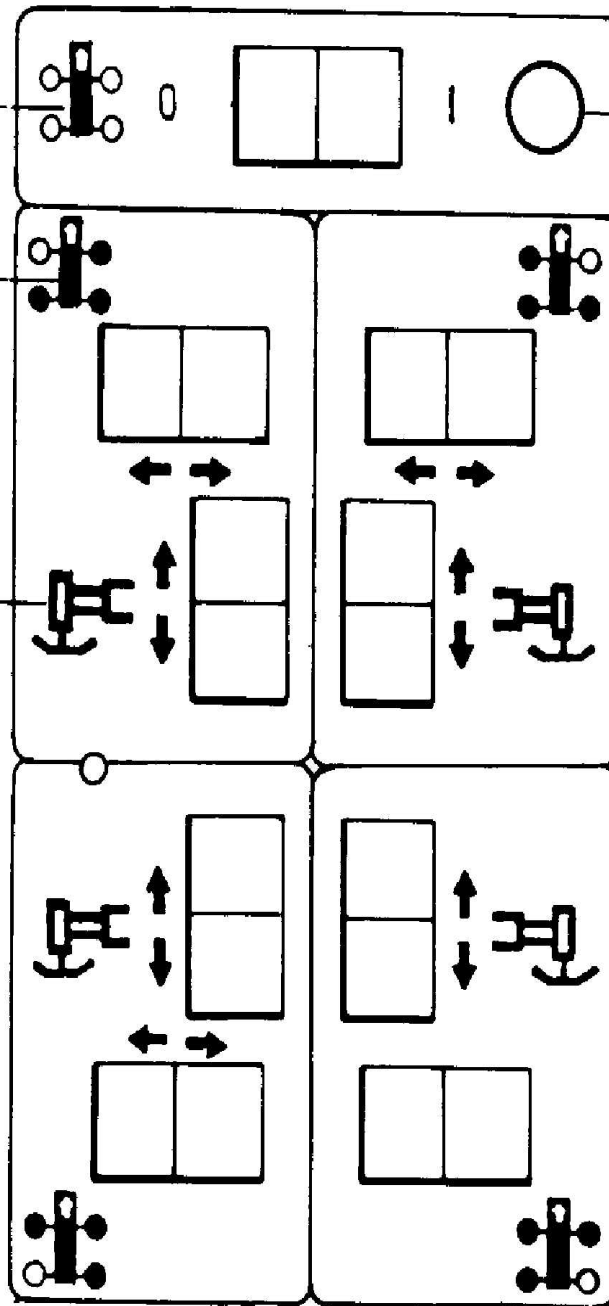
**Outrigger  
Master Control  
Switch**

**Light**

**Outriggers  
Extend**

**Raise or Lower**

**Outrigg  
er  
Panel**



# **HSHMC 25 Ton Upper Cab Side Panel**

- **Outriggers:**
  - **Stick w/four circles**
- **Top switch**
  - **Outrigger master switch**
  - **Provides power to individual outrigger switches**
- **Individual outrigger switches**
  - **Horizontal switch**
  - **Extend/Retract**
  - **Vertical switch**
  - **Raise/Lower**



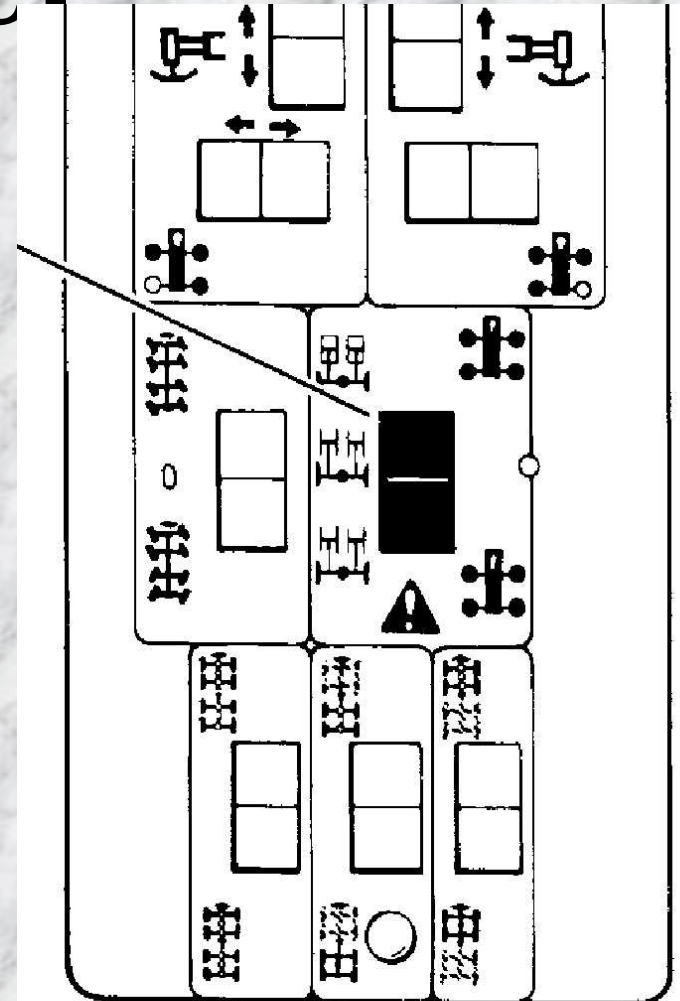
# **HSHMC 25 Ton Upper Cab Side Panel**

## **■ CAUTION**

- Extend/Retract **ONE** outrigger at a time!**
  - Over pressure of suspension**
- Raise crane front to rear**
  - Avoids stress on frame**

# HSHMC 25 Ton Upper Cab Side Panel

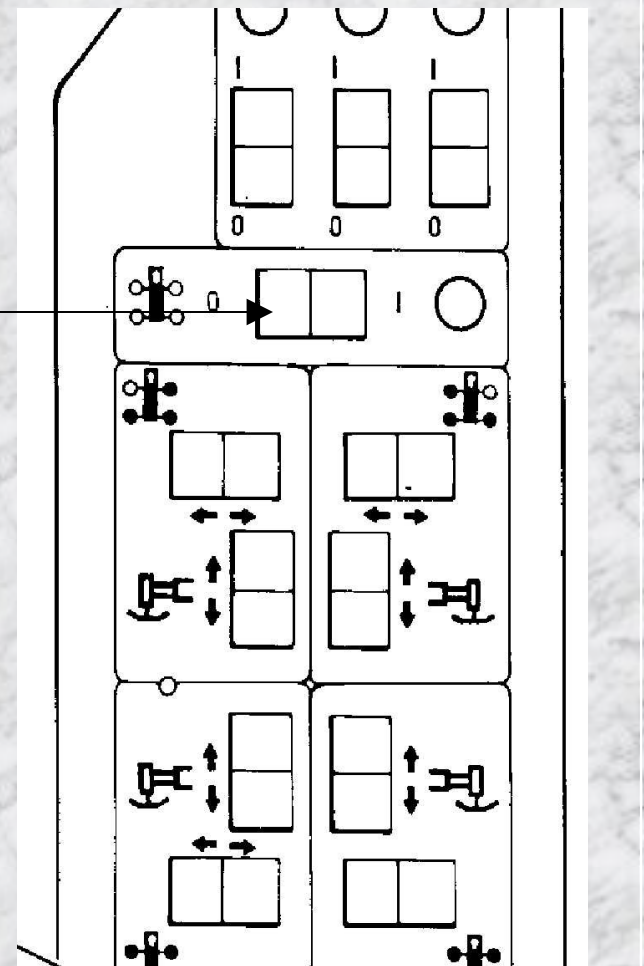
- **Suspension Switch**
  - **3 positions**
  - Top, locks
  - Middle, unlocks
  - Bottom, charging of system



# HSHMC 25 Ton Upper Cab Side Panel

## ■ Sequence of events:

- 1) Lock suspension
- 2) Outrigger power switch
- 3) Extend/Raise outriggers



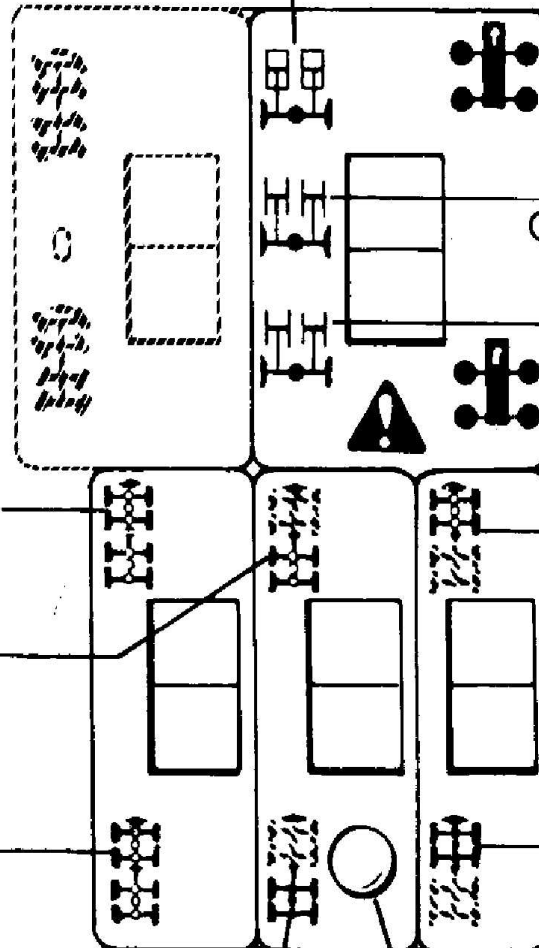


**Suspension  
Locked**

# Axle Panel

**Front Axles  
Engaged  
Differential  
Unlocked**

**Front Axle  
Disengaged  
Rear  
Differential  
Locked**



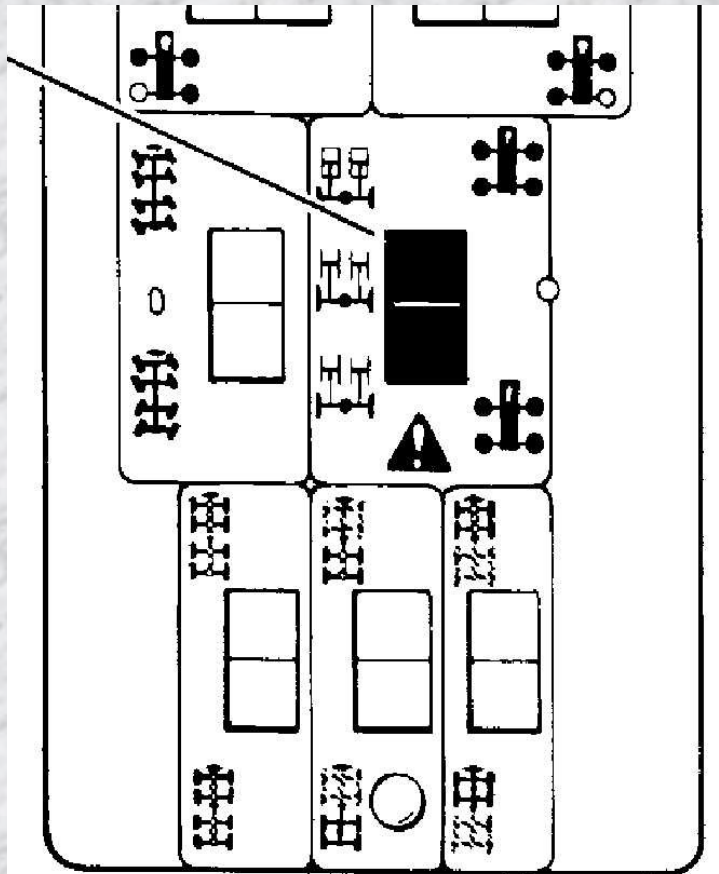
**Suspension  
Unlocked  
Suspension  
Charging**

**Front  
Differential  
Unlocked**

**Front Differential  
Locked**

**Rear Differential  
Lock Indicator**

# HSHMC 25 Ton Upper Cab Side Panel





**Fas**

**Symb**



**t**

**Slow**

**ols**



**Flood  
Lights**



**Head  
Lights**



**Windshield**

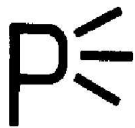


**Wiper**

**Washer**



**Horn**

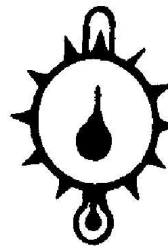


**Park  
Lights**



**Turn**

**Signal**



**Converter  
Temp**



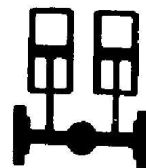
**Hydro Oil  
Temp**



**Transmission  
Lock**



**Park Brake**



**Suspension  
System Locked**



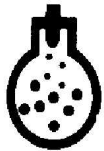
**Suspension  
System  
Unlocked**



# Symbol



**Caution**



**Starting Aid**



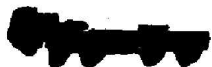
**Starter**



**Upper Cab**



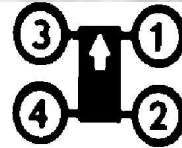
I = ON  
O = OFF  
**Master Switch**



**Carrier**

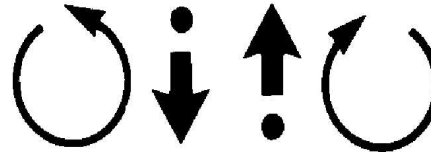


**Defroster**

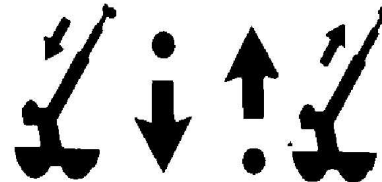


**Outrigger**

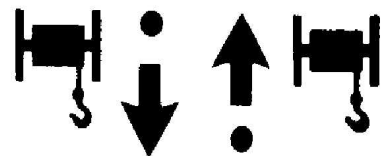
S



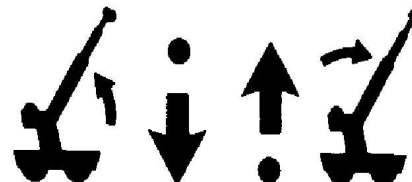
**Swing**



**Telescope**



**Winch**

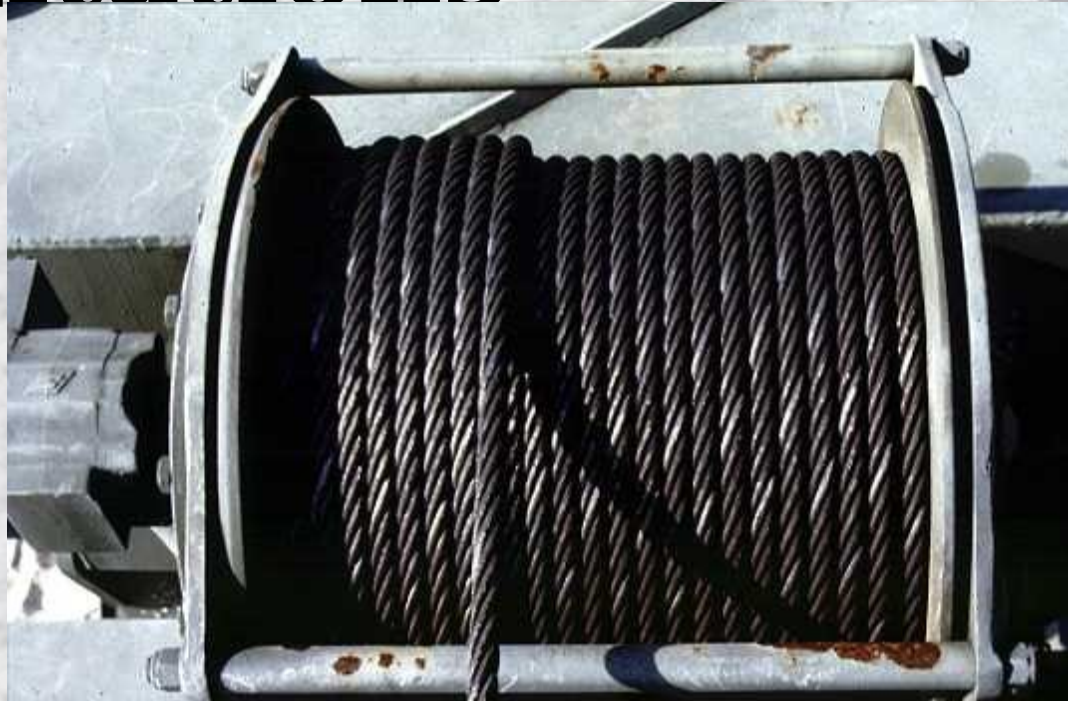


**Boom**

# **HSHMC 25 Ton Limitations**

- **Limited to raising a maximum load of -**
  - **25 tons**
  - **16 foot work radius**

# **HSHMC 25 Ton Limitations**



- **Must contain enough 3/4" wire rope for the hook block to operate at the lowest working level.**

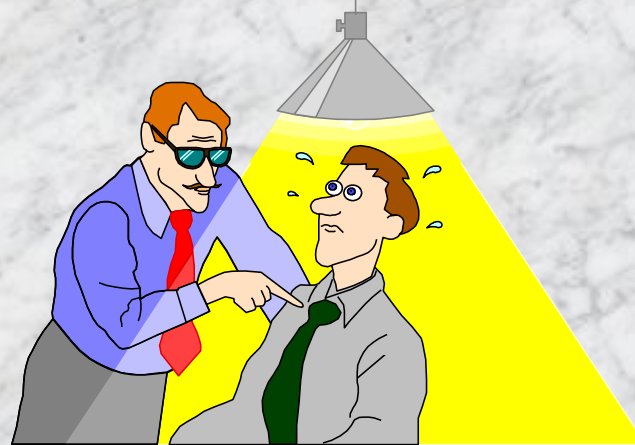


# HSHMC 25 Ton Attachments



■ 3 attachments

# **HSHMC 25 Ton Attachments**



- **Tools attached to upper structure that actually do the work.**

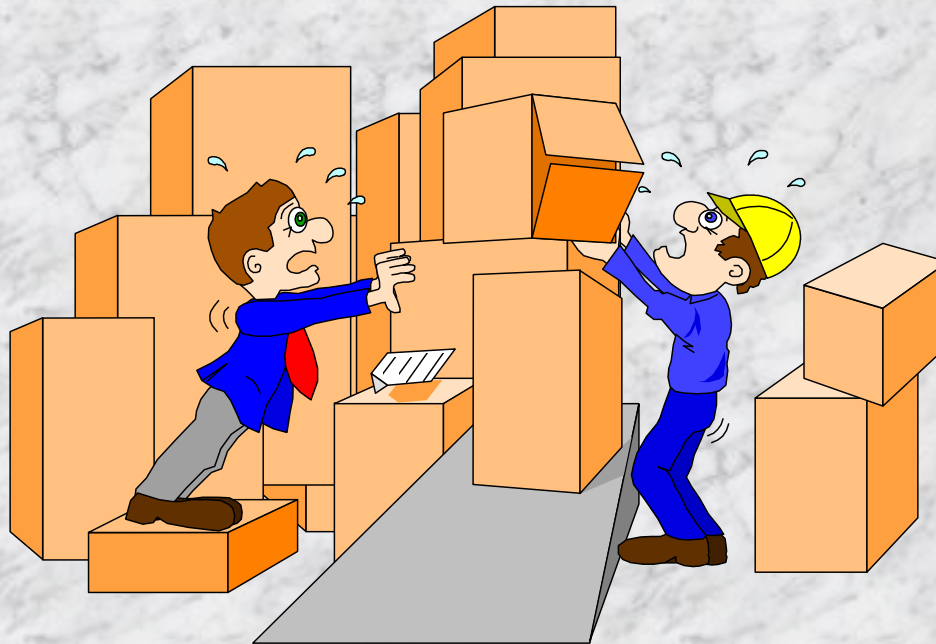
# HSHMC 25 Ton

- Reeved max 5 parts of line





# HSHMC 25 Ton



- **Pick and carry 22,000 max**

- **At 20 foot radius**

- **Straight over rear**

# **HSHMC 25 Ton Hook Block**

## **■ Uses:**

- At, above, and below ground level**
- Constructing bridges**
- Installing or removing rotor blades or propellers**
- Loading/unloading ships and trucks**

# **HSHMC 25 Ton Hook Block**

- **Lift any load rigged with slings**
- **Lift any vehicle equipped with lifting eyes**





# **HSHMC 25 Ton Clamshell**

- **Vertically  
operated  
attachment**
- **Digs loose soil  
at, above, and  
below ground  
level**
- **1 cubic yard**



# HSHMC 25 Ton Clamshell

- **Used for digging:**
  - **Foundations**
  - **Footings**
  - **Pier holes**
  - **Trenches**
  - **Cellars**



# **HSHMC 25 Ton Clamshell**

- **Filling charge bins above ground.**
- **Digging action from:**
  - **Weight of bucket**
  - **Closing of the jaws**



# **HSHMC 25 Ton Clamshell**



- **Accurate dumping control for loading trucks, scrapers, and feeders.**

# **HSHMC 25 Ton Clamshell**



■ **Refer to load chart for set up**

- **Max boom length of 70'**
- **Max radius of 55'**



# **HSHMC 25 Ton Pile Driver**

## ■ **Pile Driver**

- **Pile Driver  
Model DA-15B**
- **55' of leads**





# HSHMC 25 Ton Pile Driver



- **Bottom lead braces**

# HSHMC 25 Ton Pile Driver



■ **Pile cap**



# **HSHMC 25 Ton Pile Driver**

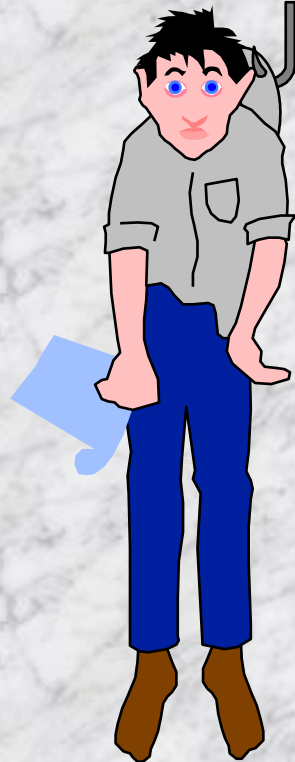


- **Single acting, self powered hammer.**



# HSHMC 25 Ton Pile Driver

Hookup Man



The Operator



■ Requires 3 man crew

# HSHMC 25 Ton Pile Driver



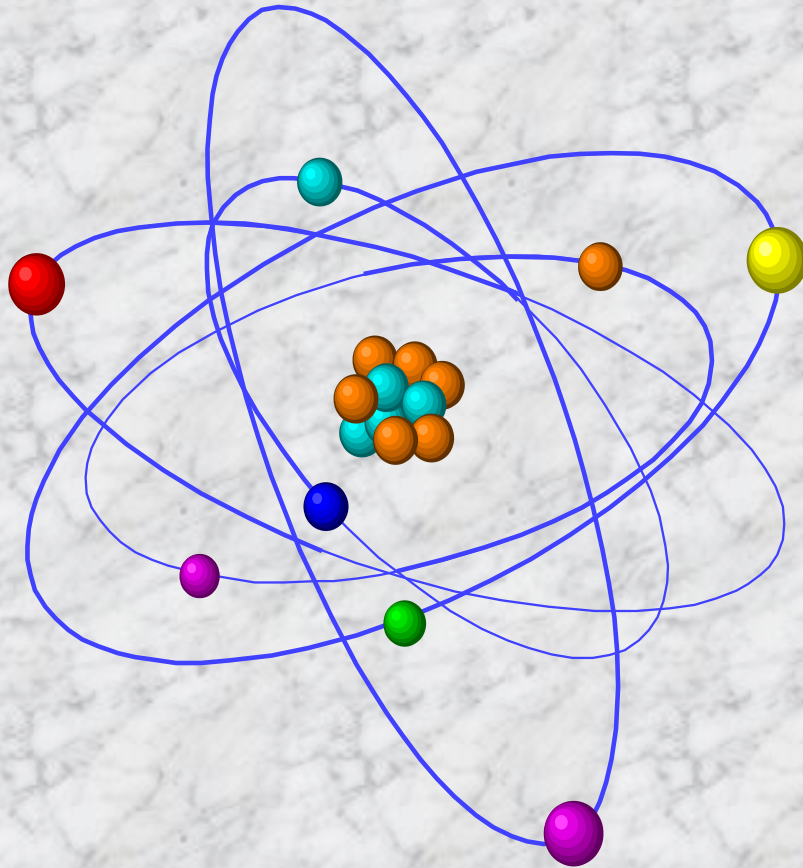


# HSHMC 25 Ton Pile Driver

- **Primarily used for driving wooden piles for:**
  - **Piers**
  - **Sea walls**
  - **Work pits**
  - **Loading ramps.**
- **Capable of driving a 40' pile that will bear 40 tons of pressure at pile refusal.**
- **Pile refusal:**
  - **10 blows** of hammer for every inch pile is driven.



# HSHMC 25 Ton Pile Driver

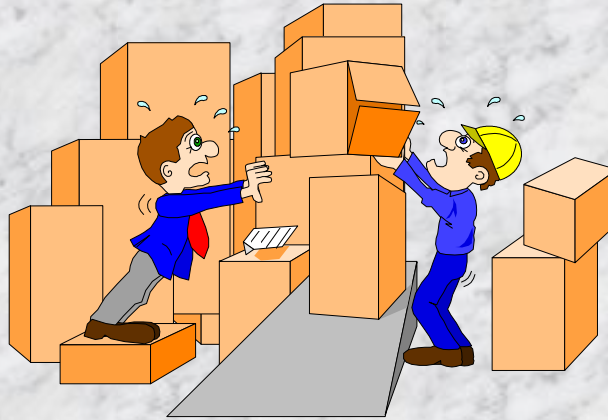


- **Energy output of hammer**
  - **8,800 foot lbs. at pile refusal**

# **HSHMC 25 Ton Pile Driver**

- **Extreme care must be taken when driving creosote piles to avoid skin and eye irritation.**
- **Placed close to the pile group to minimize the amount of time lost due to moving.**

# **HSHMC 25 Ton Pile Driver**

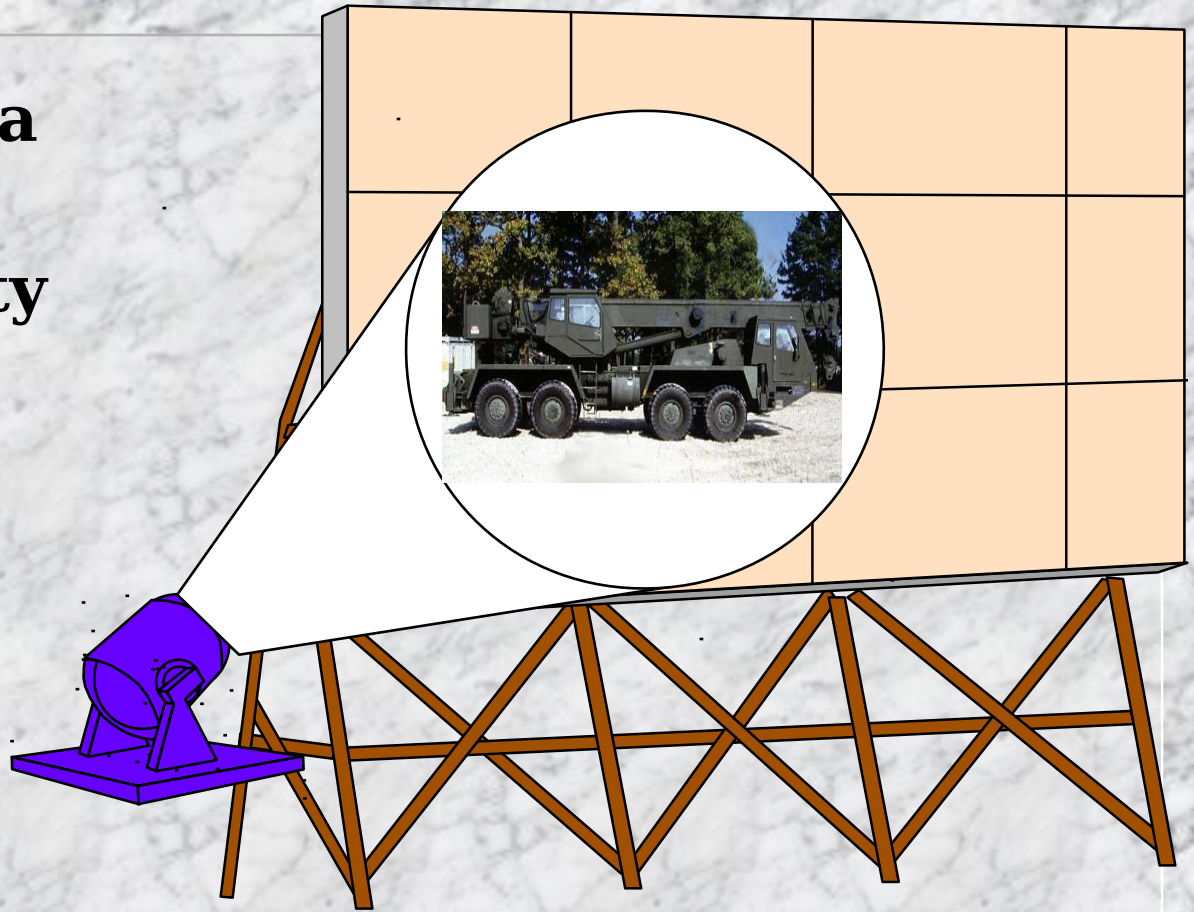


- **Traveling, fully extend and raise outriggers 6"**
- **2 mph max**
- **Drive piles at:**
  - **Vertically**
  - **Left and right angles**



# HSHMC 25 Ton

- **How about a movie?**
- **Crane Safety**



# HSHMC 25 Ton



■ **Are there any questions?**